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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,355	11/20/2001	Terence J. Knowles	13051US02	6243

7590 12/07/2004

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EXAMINER

LAO, LUN YI

ART UNIT	PAPER NUMBER
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2673

DATE MAILED: 12/07/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/998,355

Applicant(s)

KNOWLES ET AL.

Examiner

Lao Y Lun

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-120 is/are pending in the application.
- 4a) Of the above claim(s) 16, 43, 71 and 100 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-15, 36-38 and 72-86 is/are allowed.
- 6) ☒ Claim(s) 17-20, 23-35, 39, 41, 44-47, 50-66, 68, 70, 87-90, 93-96, 98 and 101-120 is/are rejected.
- 7) ☒ Claim(s) 21, 22, 40, 42, 48, 49, 67, 69, 91, 92, 97 and 99 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Double Patenting

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 17-20, 23-35, 38-39, 43-47, 50-66, 74-76, 79-84, 87-90, 93-96, 100-120 are provisionally rejected under the judicially created doctrine of

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obviousness-type double patenting as being unpatentable over claims 1-20 of copending Application No. 09/998,220 .

Copending application(09/998,220) teaches an acoustic wave switch comprising a substrate; a mesa formed on the substrate; a transducer coupled to the mesa; a driver; a deformable dome and a feedback(see claims 1-20).

This is a provisional obviousness-type double patenting rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 17-18, 23-35, 39, 41, 44-45, 50-66, 68, 70, 87-89, 93-96, 98, 101-109, 112-114, 117-118 and 120 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatigny et al(5,673,041) in view of Thurn(6,107722).

As to claims 17-18, 23-35, 39, 41, 44-45, 50-66, 68, 70, 87-89, 93-96, 98, 101-109, 112-114, 117-118 and 120, Chatigny et al teaches an acoustic wave switch comprising: a substrate(16) with a cavity (10, 12, 14, 16, 30, 32) such that a thickness of the cavity is greater than a thickness of the substrate(16) in an area adjacent the cavity(10, 12, 14, 16, 30, 32); an acoustic wave

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transducer(10), the transducer generating an acoustic wave in the substrate that is substantially trapped in the acoustic cavity; a circuit(see figures 5-7) coupled to the transducer and responsive to a change in a characteristic thereof to detect a touch on a touch surface of the acoustic cavity(see figures 1-2, 5-7; column 1, lines 31-68; column 2, lines 1-6; column 3, lines 14-58; column 5, lines 63-68; column 6, lines 1-13; column 7, lines 45-67 and column 8, lines 1-17).

Chatigny et al fail to disclose a substrate with a raised surface(mesa).

Thurn teaches a substrate(4) having a raised surface(3)(see Figure 6 and column 6, lines 36-41). It would have been obvious to have modified Chatigny et al with the teaching of Thurn, so as to produce a high speed sound(see abstract and column 4, lines 10-38).

As to claims 23, 50 and 93, it would have been obvious to mounted a transducer on a center of an acoustic switch, so as to provide equalized acoustic power at a receiver or on the side of acoustic switch.

As to claims 26-33, 53-60, 101-108, the process limitation of how the raised surface is formed has no patentable weight in claim drawn to structure. Note that a product by process claim is directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685; In re Luck, 177 USPQ 523; In re Fessmann, 180 USPQ 324; In re Avery, 186 USPQ 161; In re Wertheim, 191 USPQ 90 (209 USPQ 554 does not deal with this issue); and In re Marosi et al, 218 USPQ 289, all of which make it clear that it is the patentability of the final product per se

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which must be determined in a product by process claim, and not the patentability of the process, and that an old or obvious product by a new method is not patentable as a product, whether claimed in product by process claims or not. Note that applicant has the burden of proof in such cases, as the above caselaw makes clear.

As to claims 28, 55, Chatigny et al as modified teach the raised Surface defining the acoustic cavity is formed by adhering at least one material(20, 30) to the substrate to increase the mass of the substrate(see figures 1 and 9).

As to claims 60 and 109, Chatigny et al did not point out a non-transparent material adhering to the substrate. It would have been obvious for piezoelectric polymer element(10) is non-transparent, since it has been within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. In re Leshin, 125 USPQ 416.

As to claims 88-90, it would have been obvious to have mesa(10) height is less than 10% thickness of the acoustic cavity since this range would be recognized within the ordinary skill in the art .

As to claim 114, it would have been obvious design choice to make a mesa into a circular shape, since such a modification would have involved a mere change in the shape of mesa. A change in shape is generally recognized as being within the level of ordinary skill in the art.

5. Claims 19-20, 46-47, 90, 110, 111, 115-116 and 119 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatigny et al(5,673,041) in view of Thurn and Kent(5,986,224).

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As to claims 19-20, 46-47, 90, 110, 111, 115-116 and 119, Chatigny et al as modified fail to disclose an acoustic wave is a shear wave and the wave having a harmonic mode of $n \geq 1$.

Kent teaches an acoustic touch panel having a transmit transducer(1301, 1305) for transmitting a shear wave and the wave having a harmonic mode of $n \geq 1$ (see figures 13; column 18, lines 23-39 and column 81, lines 23-30). It would have been obvious to have modified Chatigny et al as modified with the teaching of Kent, since shear waves having the advantage that they weakly couple to liquid and silicon-rubber(see Kent's column 18, lines 30-33).

Allowable Subject Matter

6. Claims 21-22, 40, 42, 48, 49, 67, 69, 91-92, 97 and 99 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. Claims 1-15 36-38 and 72-86 are allowable since Thurn(6,107,722) teaches an acoustic cavity formed of piezoceramic or Barium titanate ceramic or aluminum ceramic or may different material from the substrate adjacent the cavity(see figure 6; column 4, lines 10-64 and column 6, lines 36-47). However, Thurn does not teach an acoustic cavity formed on a substrate having the mass per unit area of the acoustic cavity is greater than the mass per unit area of the substrate adjacent to cavity.

Response to Arguments

8. Applicant's arguments with respect to claims 17-20, 23-35, 39, 41, 44-47, 50-66, 68, 70, 87-90, 93-96, 98 and 101-120 have been considered but are moot in view of the new ground(s) of rejection.

Applicants argue that Chatigny et al do not teach an acoustic wave cavity being formed in the substrate or an acoustic wave is substantially trapped in an acoustic wave cavity. The examiner disagrees with that since Chatigny et al teach an acoustic wave cavity(10, 12, 14, 16, 30, 32)being formed in the substrate(16) or an acoustic wave is substantially trapped in an acoustic wave cavity(10, 12, 14, 16, 30, 32)(see figures 1-2, 9; column 3, lines 30-68; column 4; lines 1-50; column 7, lines 45-67 and column 8, lines 1-17).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Porat et al(6,140,740) teach an acoustic transducer element.

Murayama et al(3,798,473) teach an electroacoustic transducer element.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lun-yi, Lao whose telephone number is (703) 305-4873.

If attempts to reach the examiner by telephone are unsuccessful, the

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examiner's supervisor, Bipin Shalwala, can be reached at (703) 305-4938.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377.

December 1, 2004


Lun-yi Lao
Primary Examiner